

Order No. MD0401005C3

Service Manual

FM-AM PORTABLE RADIO
RF-562DGU / RF-562DGC
Colour
(K) ... Black



SPECIFICATIONS

Specification

■ RADIO

Frequency Range

FM	88-108 MHz
MW	530-1605 kHz
SW	4.75-18 MHz

Power Requirement

Battery; 3 V, two UM-1 (R20/LR20)
batteries

Speaker

8 cm

Power output

800 mW (RMS max)

Jack

Output

Earphone

Dimensions (W x H x D)

210 x 120 x 65 mm

Weight

650 g (without batteries)

Notes:

1. Design and specifications are subject to change without notice.

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

1. Operating Instructions

1.1. Location of control

1. Speaker

2. Telescopic antenna

FM : Pull out the telescopic antenna and adjust its length and angle for optimum reception.

MW : The sensitive ferrite core antenna inside the unit will provide excellent MW reception in most areas. For optimum reception, turn the unit in the direction which gives the best results, since the ferrite core antenna is directional.

SW : Extend the telescopic antenna fully and keep it vertical.

3. Tuning control

4. Earphone jack

- Avoid listening for prolonged periods of time to prevent hearing damage.
- The speaker is automatically cut off when an earphone is connected.

5. On-off/volume control switch

Turn clockwise to switch the radio on, and adjust the volume level.

6. Battery compartment

2. Disassembly and Main Component Replacement Procedures and Operational Check

“ATTENTION SERVICER”

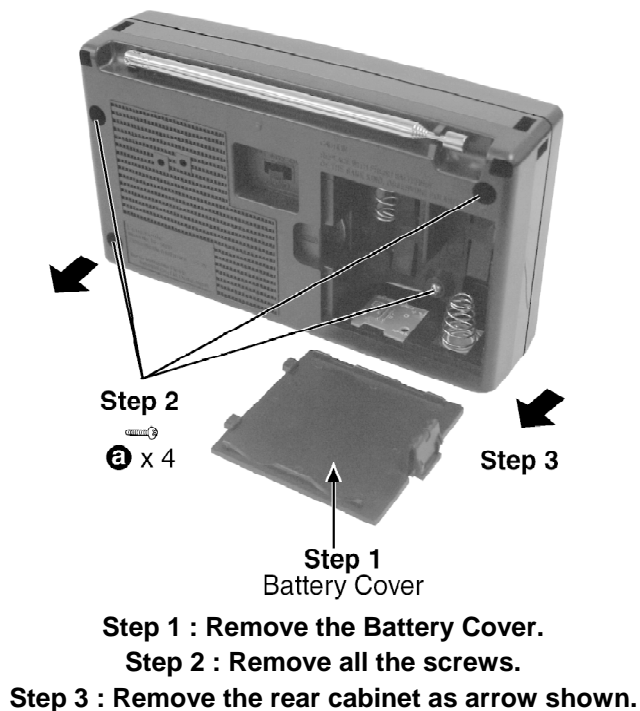
Some chassis components maybe have sharp edges. Be careful when diassembling and servicing.

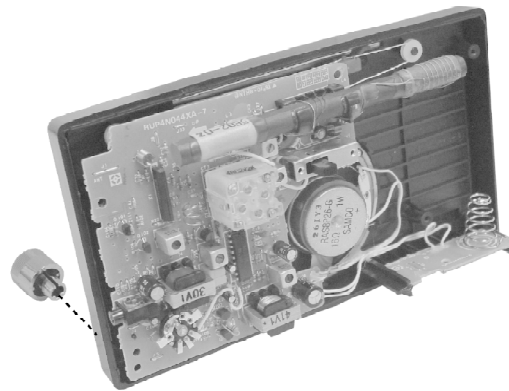
1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures. / Special reassembly procedures are described only when required.
3. Select items from the following index when checks or replacement are required.

Content

- Checking Procedure for Main P.C.B.

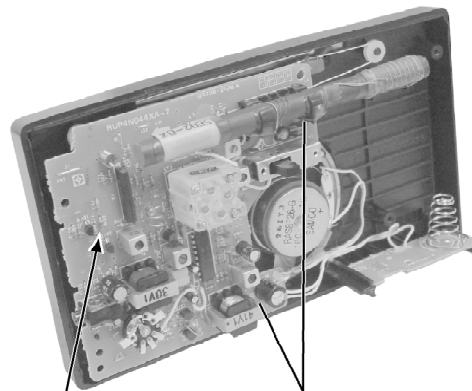
2.1. Checking Procedure for Main P.C.B.





Step 4
Volume Knob

Step 4 : Remove the Volume Knob.



Step 5
Main P.C.B
Ⓟ x 2

Step 5 : Remove all the screws.

3. Notes of Schematic Diagram

(All schematic diagrams may be modified at any time with the development of the new technology)

Note:

SW1

: BAND switch


VR1

: Variable Resistor

- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis. Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.

< > : FM

- Importance safety notice :

Components identified by  mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

Caution !

IC, LSI and VLSI are sensitive to static electricity.

Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminium foil.
- Put a conductive mat on the work table.
- Ground the soldering iron.
- Do not touch the pins of IC, LSI or VLSI with fingers directly.

4. Schematic Diagram

5. Printed Circuit Board

6. Wiring Connection Diagram

7. Measurements and Adjustments

7.1. Tuner Section

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT
1. Set volume control to maximum. 2. Set band switch to MW, SW, AM and FM. 3. Set function selector to radio. 4. Set fine tuning to centre. 5. Set power source voltage to 6V DC. 6. Output of signal generator should be no higher than necessary to obtain an output reading.

● MW-RF ALIGNMENT

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

1. Set volume control to maximum.
2. Set band switch to MW, SW, AM and FM.
3. Set function selector to radio.
4. Set fine tuning to centre.
5. Set power source voltage to 6V DC.
6. Output of signal generator should be no higher than necessary to obtain an output reading.

● MW-RF ALIGNMENT

Signal Generator or Sweep Generator		Radio Dial Setting	Indicator (Electronic Voltmeter or Oscilloscope)	Adjustment (Shown in Fig.1)	Remarks
Connections	Frequency				
Fashion a loop of several turns of wire and radiate a signal into loop ant. of receiver.	511 kHz (GU) 514 ± 3 kHz (GC)	Tuning capacitor fully closed.	Output meter across voice coil.	L8 (MW OSC MIN)	Adjust for maximum output.
Fashion a loop of several turns of wire and radiate a signal into loop ant. of receiver.	1,650 kHz (GC) 1639 ± 5 kHz (GU)	Tuning capacitor fully open.	Output meter across voice coil.	CT2 (MW OSC MAX)	Adjust for maximum output.
Fashion a loop of several turns of wire and radiate a signal into loop ant. of receiver.	550 kHz	Tune to signal.	Output meter across voice coil.	[*1] L3 (MW ANT Coil)	Adjust for maximum output. Adjust L3 by moving coil bobbin along ferrite core.
Fashion a loop of several turns of wire and radiate a signal into loop ant. of receiver.	1,500 kHz	Tune to signal.	Output meter across voice coil.	CT1 (MW ANT MAX)	Adjust for maximum output. Repeat steps (2) ~ (5).

SW-RF ALIGNMENT

Signal Generator or Sweep Generator		Radio Dial Setting	Indicator (Electronic Voltmeter or Oscilloscope)	Adjustment (Shown in Fig.1)	Remarks
Connections	Frequency				
Fashion a loop of several turns of wire and radiate a signal into loop ant. of receiver.	4.7 MHz	Tuning capacitor fully closed.	Output meter across voice coil.	L9 (SW OSC MIN)	Adjust for maximum output.
Fashion a loop of several turns of wire and radiate a signal into loop ant. of receiver.	18.5 MHz	Tuning capacitor fully open.	Output meter across voice coil.	CT5 (SW OSC MAX)	Adjust for maximum output.
Fashion a loop of several turns of wire and radiate a signal into loop ant. of receiver.	4.8 MHz	Tune to signal.	Output meter across voice coil.	L4 (SW ANT MIN)	Adjust for maximum output.
Fashion a loop of several turns of wire and radiate a signal into loop ant. of receiver.	18.0 MHz	Tune to signal.	Output meter across voice coil.	CT6 (SW ANT MAX)	Adjust for maximum output. Repeat steps (6) ~ (9)

AM-IF ALIGNMENT

Signal Generator or Sweep Generator		Radio Dial Setting	Indicator (Electronic Voltmeter or Oscilloscope)	Adjustment (Shown in Fig.1)	Remarks
Connections	Frequency				
Fashion a loop of several turns of wire and radiate a signal into loop ant. of receiver.	455 kHz 30 percent Mod. at 400 Hz	Point of non-interference. (on/ about 600 kHz)	Output meter across voice coil.	T2 (AM IF)	Adjust for maximum output.

[*1] Cement antenna bobbin with wax after completing alignment.

FM-IF ALIGNMENT

Signal Generator or Sweep Generator		Radio Dial Setting	Indicator (Electronic Voltmeter or Oscilloscope)	Adjustment (Shown in Fig.1)	Remarks
Connections	Frequency				
High side thru. 0.001Micro Farad to test point TP3. Negative side to test point TP2.	10.7 MHz (SWP)	Point of non-interference. (on/ about 90 MHz)	Connect vert. amp. of scope to test point TP4. Negative side to test point TP2.	T1 (FM-IF) [V]	Adjust for maximum amplitude. (Refer to fig. 3).
High side thru. 0.001Micro Farad to test point TP3. Negative side to test point TP2.	10.7 MHz (SWP)	Point of non-interference. (on/ about 90 MHz)	Connect vert. amp. of scope to test point TP5. Negative side to test point TP4.	T3 (FM-IF)	Adjust for maximum amplitude. (Refer to fig. 2).

● FM-RF ALIGNMENT

Signal Generator or Sweep Generator		Radio Dial Setting	Indicator (Electronic Voltmeter or Oscilloscope)	Adjustment (Shown in Fig.1)	Remarks
Connections	Frequency				
Connect to test point TP1 through FM dummy antenna. Negative side to test point TP2.	86.2 MHz (GU) 87.35 MHz \pm 50 kHz (GC)	Variable capacitor fully closed.	Output meter across voice coil.	L2 (FM OSC MIN)	[*2] Adjust for maximum output.
Connect to test point TP1 through FM dummy antenna. Negative side to test point TP2.	109.2 MHz (GU) 108.28 MHz \pm 70 kHz (GC)	Variable capacitor fully open.	Output meter across voice coil.	CT4 (FM OSC MAX)	CT9 must be prealign to center before inserting into P.C.B.. Then [*2] Adjust for maximum output.
Connect to test point TP1 through FM dummy antenna. Negative side to test point TP2.	106 MHz	Tune to signal.	Output meter across voice coil.	CT3 (FM ANT MAX)	[*2] Adjust for maximum output. Repeat steps (3) ~ (5)

[*2] Three output responses will be present; proper tuning is the center frequency.

ALIGNMENT POINT

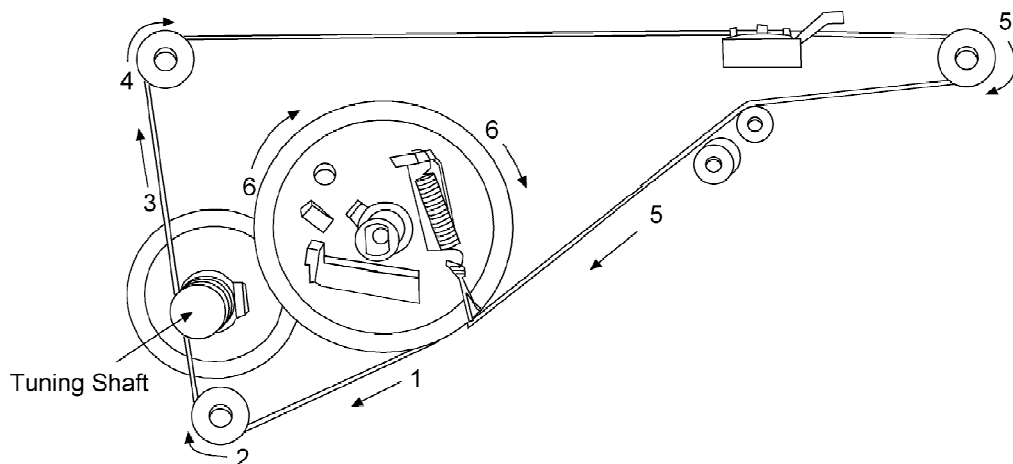
* Please refer to Circuit Board and wiring Connection Diagram for test point locations.

● DIAL THREADING

1. Remove chassis from cabinet (Refer to 2. Disassembly and Main Component Replacement Procedures and Operational Check)
2. Turn dial drum to fully counter-clockwise. (Turn dial gear to fully clockwise.).
3. Route dial cord in ordered character (1-6), turn 3 times at Tuning Shaft.
4. Cement dial cord ends.

● DIAL THREADING

1. Turn dial drum to fully counter-clockwise. (Turn dial drum to fully clockwise.)
2. Set dial pointer to start point (0) of dial scale.
3. Attach dial cord to dial pointer.



8. Type Illustrations of ICs, Transistors & Diodes

9. Parts Location and Replacement Parts List

Notes:

- Important safety notice:

Components identified by  mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low noise (resistors), etc are used.

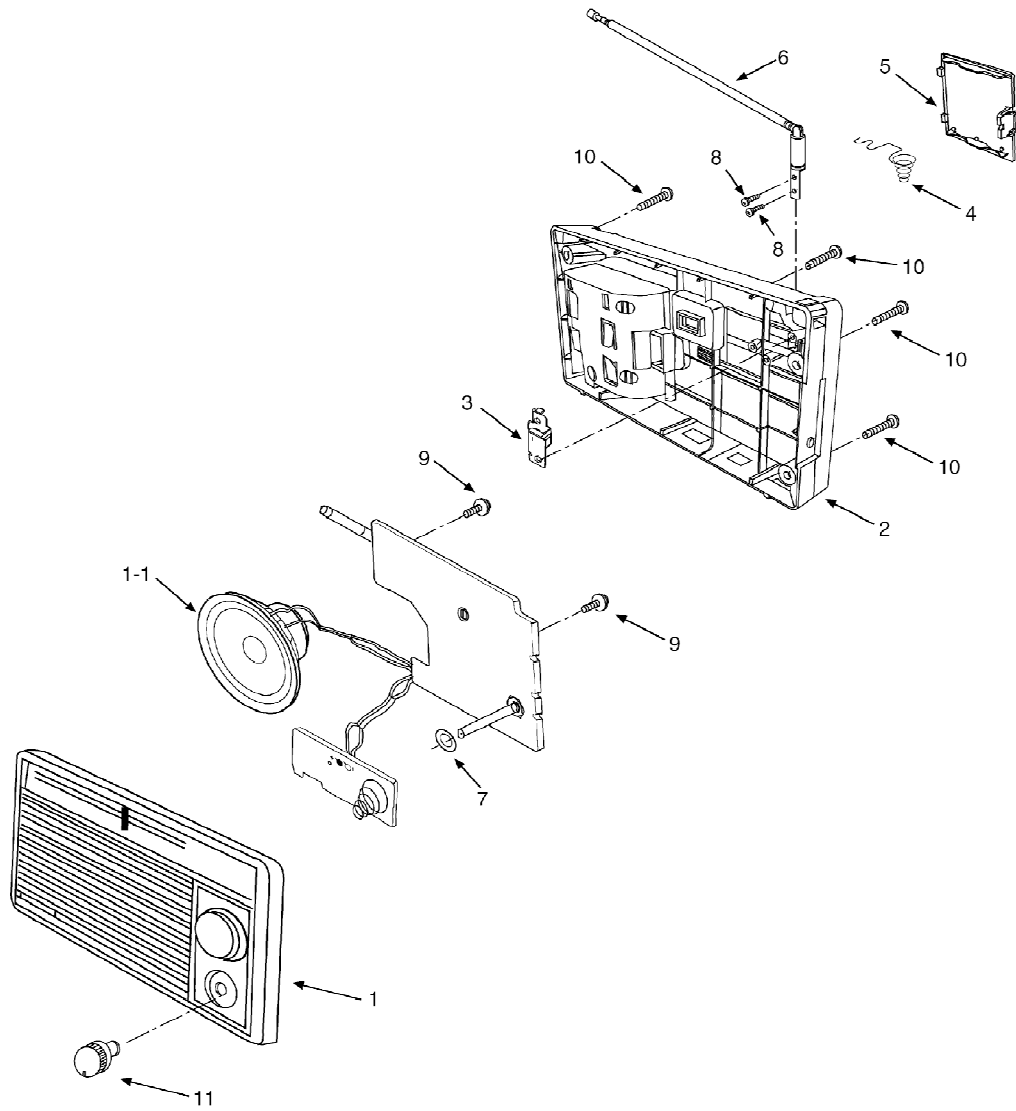
When replacing any of these components, be sure to use only manufacturer's specified parts shown in the parts list.

- The parenthesized indications in the Remarks columns specify the areas or colour. (Refer to the cover page for area or colour)
Parts without these indications can be used for all areas.
- Capacitor values are in microfarads (μ F) unless specified otherwise, P= Pico-farads (pF), F= Farads.
- Resistance values are in ohms, unless specified otherwise, 1K= 1,000 (OHM).
- The marking (RTL) indicates that the Retention Time is limited for this items. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of a availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.
- [M] markings in the Remarks columns indicates parts supplied by PAVCSG.
- Reference for O/I book languages are as follows:

Ar :	Arabic	Du :	Dutch	It :	Italian	Sp :	Spanish
Cf :	Canadian French	En :	English	Ko :	Korean	Sw :	Swedish
Cz :	Czech	Fr :	French	Po :	Polish	Co :	Traditional Chinese
Da :	Danish	Ge :	German	Ru :	Russian	Cn :	Simplified Chinese
Pe :	Persian						

9.1. Cabinet

9.1.1. Cabinet Parts Location



9.1.2. Cabinet Parts List

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RFKGF562DGCK	FRONT CABINET ASS'Y	[M]GC1
1	RFKGF562DGUI	FRONT CABINET ASS'Y	[M]GU1
1-1	RAS8P26-G	SPEAKER	[M]
2	RKF4N010ZA-2	BACK CABINET	[M]
3	RJT4N010ZA	ANT TERMINAL	[M]
4	RJC91001	BATT SPRING	[M]
5	RKK4N010ZA	BATT COVER	[M]
6	XEARK132GC	ROD ANTENNA	[M]
7	RNW823-A	WASHER	[M]
8	XTN23+7C	SCREW	[M]
9	XTV3+8G	SCREW	[M]
10	XTV3+12G	SCREW	[M]
11	RBN4N011RA	VOLUME KNOB	[M]

9.2. Component Part list

Ref. No.	Part No.	Part Name & Description	Remarks
		P.C.B	
	RUP4N044XB-2	Main P.C.B. (GC) / Battery P.C.B. (GC)	[M]
	RUP4N044XA-7	Main P.C.B. (GU) / Battery P.C.B. (GU)	[M]
		INTEGRATED CIRCUITS	
IC1	TA7358P	IC (FRONT END)	[M]
IC2	AN7236	IC	[M]
		TRANSISTORS	
Q1	2SC829BTA	TRANSISTOR	[M]
Q101	KTC3199LGRAT	TRANSISTOR	[M]
Q102	KTC3199LGRAT	TRANSISTOR	[M]
Q103	KTC3203YAT	TRANSISTOR	[M]
Q104	KTC3203YAT	TRANSISTOR	[M]
		DIODES	
D101	MA27B1TA	DIODE	[M]
		VARIABLE RESISTORS	
VR1	RRVN16G4A14P	VARIABLE RESISTOR	[M]
		SWITCHES	
SW1	RSS3F09ZA-B	BAND SWITCH	[M]
		TRIMMER	
CT1	RCV4RC2V2K-M	VARIABLE CAPASITOR	[M]
CT2	RCV4RC2V2K-M	CARIABLE CAPACITOR	[M]
CT3	RCV4RC2V2K-M	CARIABLE CAPACITOR	[M]
CT4	RCV4RC2V2K-M	VARIABLE CAPASITOR	[M]
CT5	RCVTZ11F	TRIMMER CAPACITOR	[M]
CT6	RCV05AF2-S	TRIMMER CAPACITOR	[M]
		COILS & TRANSFORMERS	
L2	RLD4Y53W	FM OSC COIL	[M]GU1
L2	RL04P004	FM OSC COIL	[M]GC1
L3	RLVN5E02-0Z	FERRITE ANTENNA	[M]
L4	RLVN5E02-0Z	FERRITE ANTENNA	[M]
L5	RLQY30S1W	RF CHOKE COIL	[M]
L7	RLQY75S5	CHOKE COIL	[M]
L8	RL02B108	AM OSC COIL	[M]
L9	RL03B46	SW OSC COIL	[M]

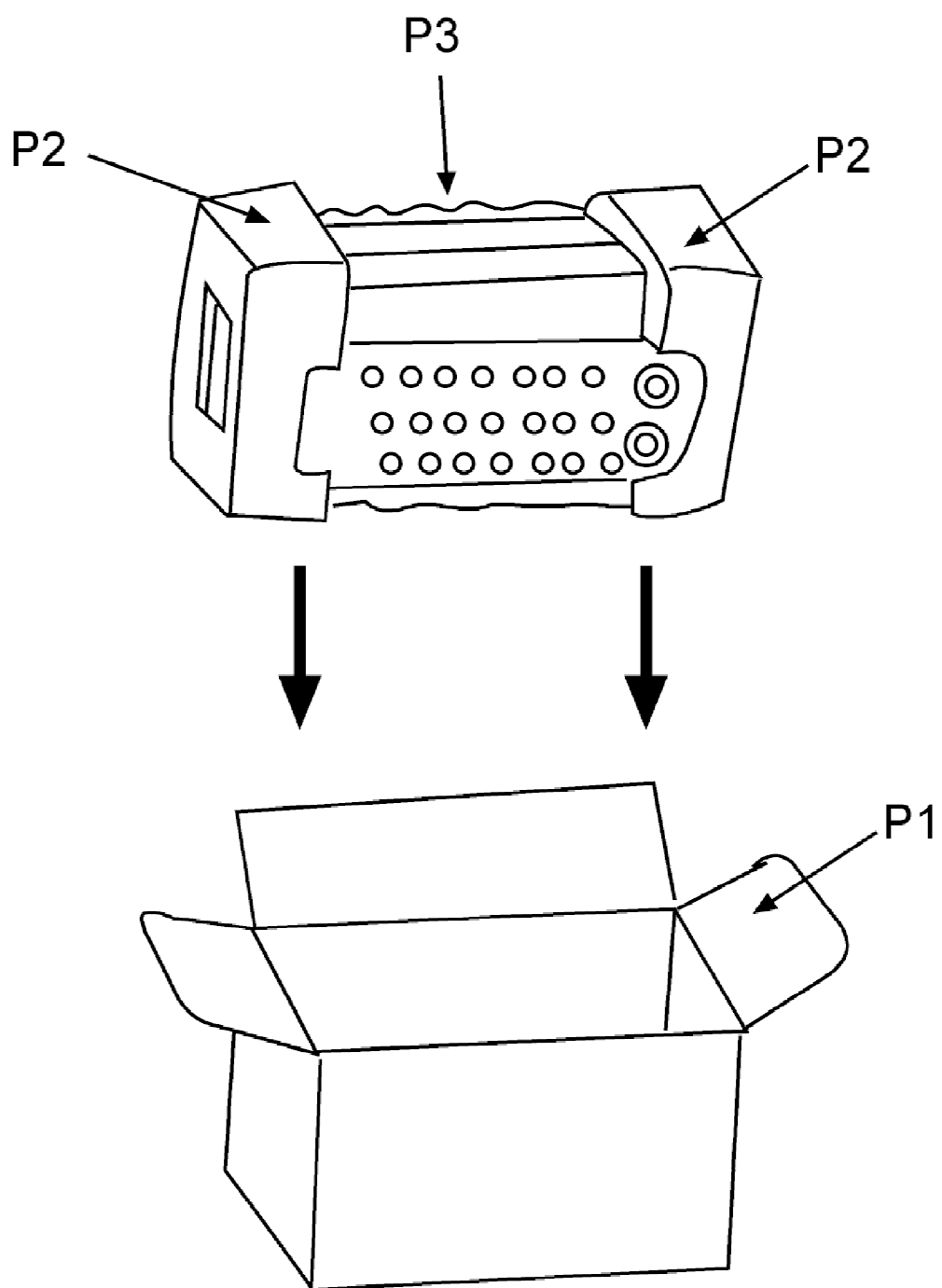
Ref. No.	Part No.	Part Name & Description	Remarks
T1	RLI4B153	FM IFT	[M]
T2	RLI2B153	AM IFT	[M]
T3	RLI4B153	FM IFT	[M]
T4	RLT3F30-1V	I.P.T	[M]
T5	RLT2F41-1V	O.P.T	[M]
		CERAMIC FILTERS	
CF2	RVFSFZ455JL	CERAMIC FILTER	[M]
		RESISTORS	
R1	ERDS2TJ220T	RESISTOR	[M]
R3	ERDS2TJ470T	RESISTOR	[M]
R6	ERDS2TJ334T	RESISTOR	[M]
R7	ERDS2TJ331T	RESISTOR	[M]
R8	ERDS2TJ560T	RESISTOR	[M]
R12	ERDS2TJ101T	RESISTOR	[M]
R13	ERDS2TJ103T	RESISTOR	[M]
R14	ERDS2TJ222T	RESISTOR	[M]
R15	ERDS2TJ682T	RESISTOR	[M]
R16	ERDS2TJ470T	RESISTOR	[M]
R20	ERDS2TJ180T	RESISTOR	[M]
R21	ERDS2TJ121T	RESISTOR	[M]
R22	ERDS2TJ470T	RESISTOR	[M]
R23	ERDS2TJ101T	RESISTOR	[M]
R101	ERDS2TJ334T	RESISTOR	[M]
R102	ERDS2TJ330T	RESISTOR	[M]
R104	ERDS2TJ562T	RESISTOR	[M]
R105	ERDS2TJ101T	RESISTOR	[M]
R106	ERDS2TJ330T	RESISTOR	[M]
R107	ERDS2TJ681T	RESISTOR	[M]
R109	ERDS2TJ223T	RESISTOR	[M]
R110	ERX12SJR22E	METAL RESISTOR	[M]
		CAPACITORS	
C1	ECBT1H4R7KC5	4.7 50V	[M]
C3	ECBT1H220JC5	22 50V	[M]
C4	ECFR1C223MR	0.022 16V	[M]
C5	ECBT1H4R7KC5	4.7 50V	[M]
C6	ECBT1H102KB5	1000P 50V	[M]
C8	ECBT1H150JC5	15 50V	[M]
C9	ECBT1C103NS5	0.01 16V	[M]
C10	ECBT1H220JC5	22 50V	[M]
C11	ECBT1H470J5	47 50V	[M]
C14	ECBT1C103NS5	0.01 16V	[M]
C15	ECBT1C103NS5	0.01 16V	[M]
C17	ECFR1C333MR	0.033 16V	[M]
C19	ECFR1C223MR	0.022 16V	[M]
C20	ECFR1C223MR	0.022 16V	[M]
C21	RCEA0JKA470A	47 6.3V	[M]
C22	ECFR1C223MR	0.022 16V	[M]
C23	RCEA0JM471BK	470 6.3V	[M]

Ref. No.	Part No.	Part Name & Description	Remarks
C24	ECBT0J223NS5	0.022 6.3V	[M]
C26	ECBT1H151KB5	150 50V	[M]
C27	ECBT0J223NS5	0.022 6.3V	[M]
C28	ECBT0J223NS5	0.022 6.3V	[M]
C29	RCEA1HKA0R1B	0.1 50V	[M]
C30	ECBT0J223MS5	0.022 6.3V	[M]
C31	ECBT1C103MS5	0.01 16V	[M]
C32	ECBT1H470J5	47 50V	[M]
C33	ECBT1H100JC5	100 50V	[M]
C34	ECBT1H102KB5	1000P 50V	[M]
C35	ECBT1H102KB5	1000P 50V	[M]
C37	ECBT1H102KB5	1000P 50V	[M]
C38	ECBT1C103NS5	0.01 16V	[M]
C39	RCEA0JKA101B	100 6.3V	[M]
C40	ECBT1H102KB5	1000P 50V	[M]
C41	ECBT1H331KB5	330 50V	[M]
C43	ECBT1H100JC5	10 50V	[M]
C44	ECBT1H220JC5	22 50V	[M]
C45	ECQP2A361JZT	360 100V	[M]
C46	ECQP2A272JZT	2700P 100V	[M]
C48	ECBT1H102KB5	1000P 50V	[M]
C102	RCEA1HKA010B	1 50V	[M]
C104	ECBT1H102KB5	1000P 50V	[M]
C105	RCEA0JM102BK	1000P 6.3V	[M]
C106	RCEA0JU102EK	1000P 6.3V	[M]
C107	ECBT1C103MS5	0.01 16V	[M]
C108	ECBT1C103MS5	0.01 16V	[M]
C109	ECFR1C333MR	0.033 16V	[M]
C110	ECBT1H102KB5	1000P 50V	[M]
C111	ECBT1H151KB5	150P 50V	[M]

9.3. Packing Materials & Accessories Parts List

Ref. No.	Part No.	Part Name & Description	Remarks
		PACKING MATERIALS	
P1	RPK1336-2	GIFT BOX	[M]
P3	RFCN0005	CARRYING CASE	[M]
P2	RPNN0051	POLY FOAM (L&R)	[M]

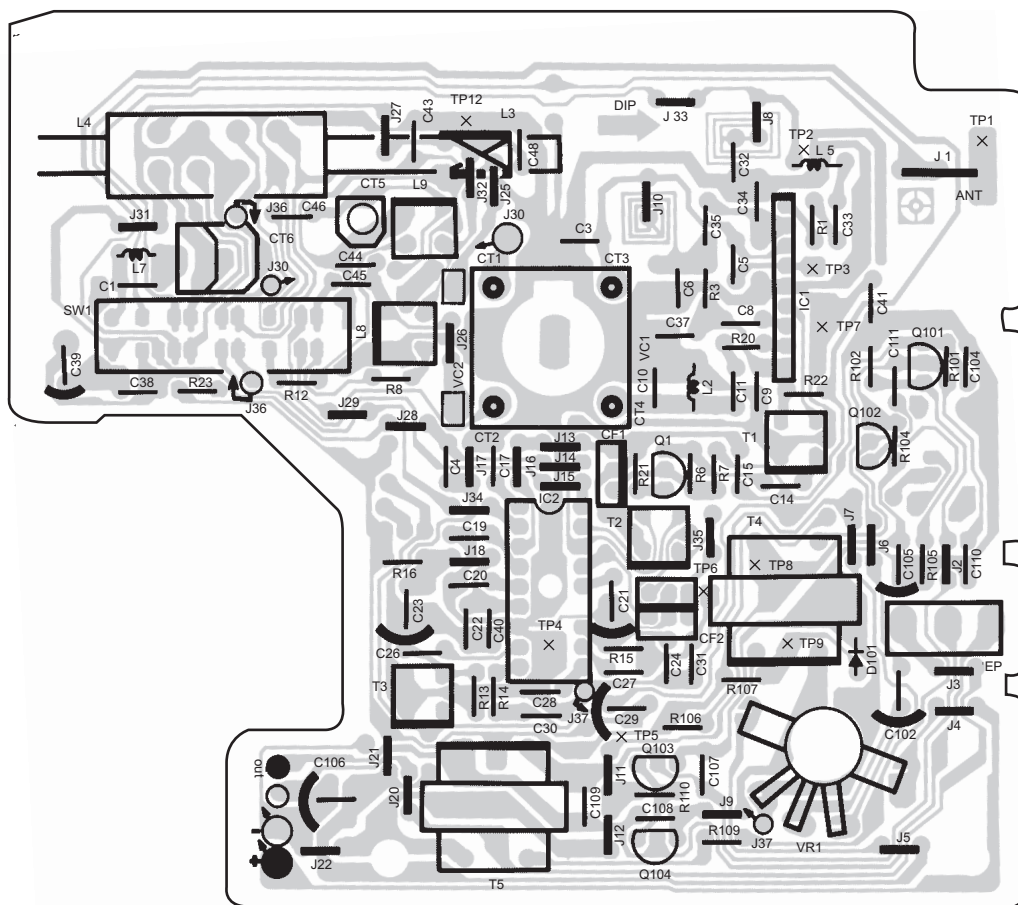
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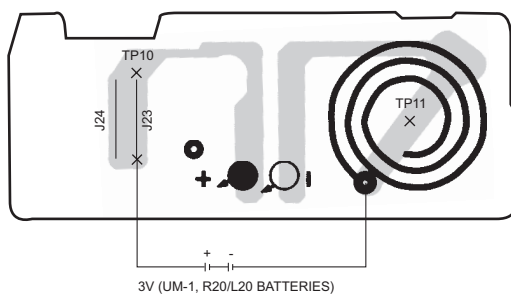
FLE0401/K/S/N/E/J

A B C D E F G

A MAIN P.C.B. (RUP4N044XB-2...GC)
(RUP4N044XA-7...GU)

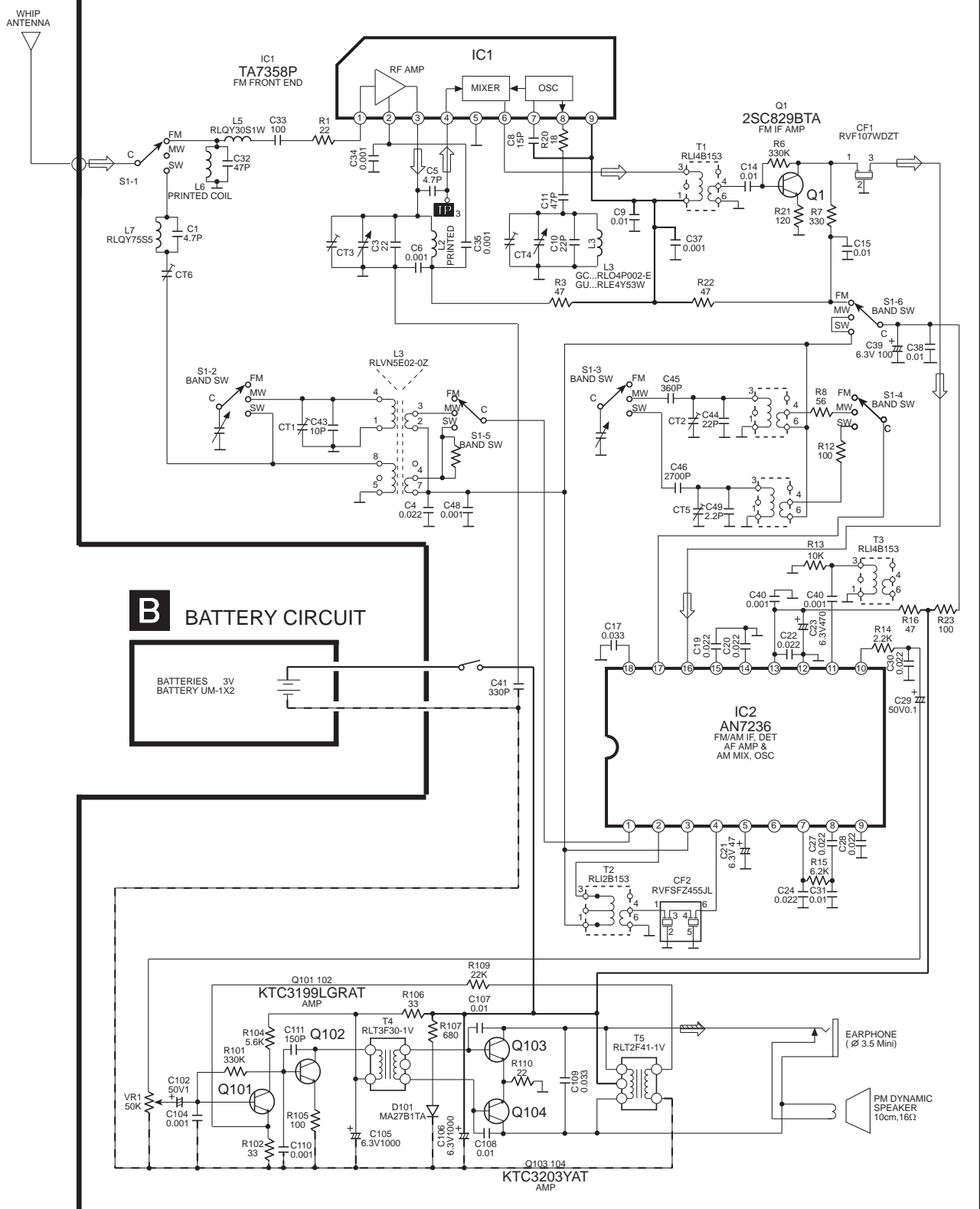


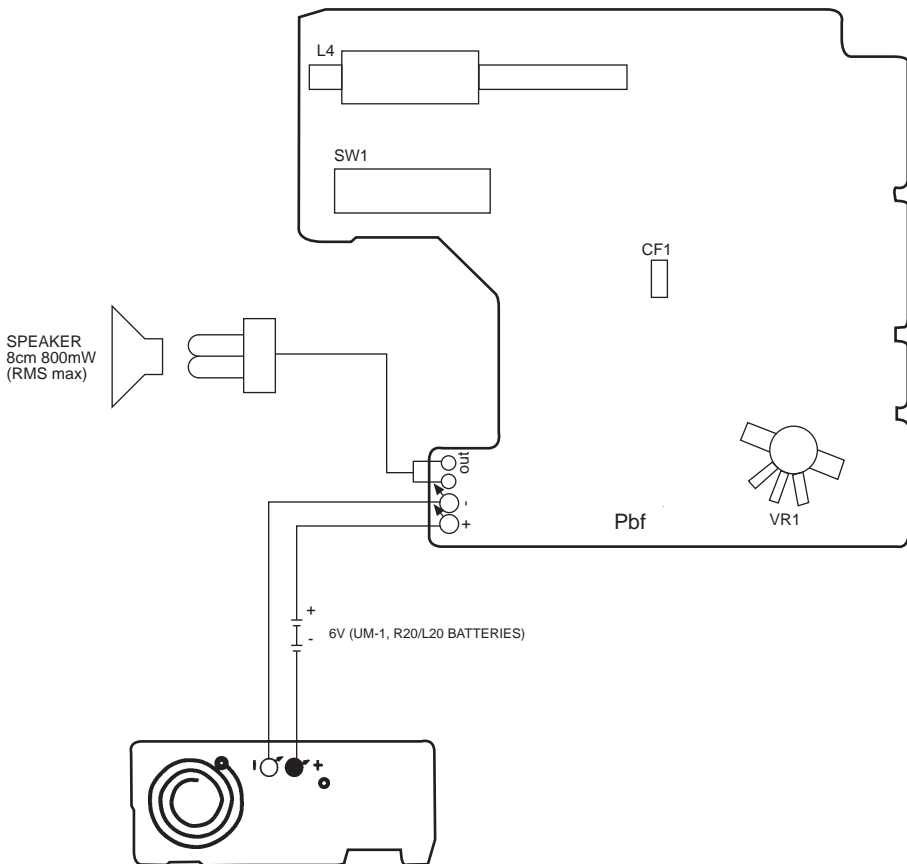
B BATTERY P.C.B. (RUP4N044XB-2...GC)
(RUP4N044XA-7...GU)



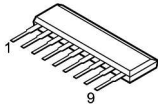
A MAIN CIRCUIT

———— : +B SIGNAL LINE : MAIN SIGNAL LINE

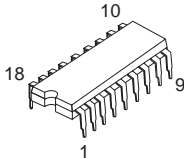


A**MAIN P.C.B.****B****BATTERY P.C.B.**

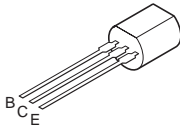
TA7358P



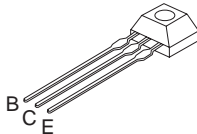
AN7236



2SC829BTA
KTC3203YAT



KTC3199LGRAT



MA27B1TA

